

New Abstract

ABSTRACT OF THE DISCLOSURE

A ceramic composite with a mixed conducting oxide that has perovskite type crystal structure of $\{Ln_{1-a}A_a\} \{B_xB'_yB''_z\} O_{(3-\delta)}$ where a, x, y, and z are within the range of $0.8 \leq a \leq 1$, $0 < x$, $0 < y \leq 0.5$, $0 \leq z \leq 0.2$, $0.98 \leq x + y + z \leq 1.02$, and δ denotes a value that is determined so as to meet a charge neutralization condition. A denotes a combination of one or more kinds of elements selected out of Ba, Sr, and Ca. B denotes a combination of one or more kinds of elements selected out of Co, Fe, Cr, and Ga, the combination always containing Fe or Co. B' denotes a combination of one or more kinds of elements selected out of Nb, Ta, Ti, and Zr, the combination always containing Nb or Ta. The present invention is also directed to a mixed conducting oxide and a ceramic composite. The mixed conducting oxide is of formula $AFe_xO_{(3-\delta)}$. A is selected out of Ba, Sr, and Ca, and is within the range of $0.98 \leq x \leq 1.02$, and δ denotes a value determined so as to meet the charge neutralization conditions.

